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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/821,410  | 03/29/2001  | Rabah S. Hamdi       | H052617.1077US0     | 3679             |
| 1200  | 7590        | 08/18/2005           | EXAMINER            |                  |
| AKIN, GUMP, STRAUSS, HAUER & FELD<br>1111 LOUISIANA STREET<br>44TH FLOOR<br>HOUSTON, TX 77002 |             |                      | TSE, YOUNG TOI      |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2637                |                  |

DATE MAILED: 08/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/821,410

Applicant(s)

HAMDI, RABAH S.

Examiner

YOUNG T. TSE

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-16, 18-32, 35-45 and 47-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-16, 18-32, 35-45 and 47-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1-6, 8-16, 18-32, 34-45 and 47-52 are objected to because of the following informalities:

In claim 1 (lines 4, 5, 7 and 11), claims 2-3, 5, 10-15, 20-25, 35 and 47-49 (line 2), claim 16 (line 8), claim 19 (line 6), claims 36 and 50 (lines 2 and 3), and claim 39 (line 3), "channel" should be "transmission media channel" in consistent with other claims.

In claim 6, line 2, "estimated impulse response" should be "estimate of the impulse response of the transmission media channel".

In claim 16, lines 7-8, "the unknown impulse response" should be "an unknown impulse response".

In claim 18, line 1, "claim 17" should be "claim 16" since claim 17 has been cancelled.

In claim 26, lines 10 and 14, "executing code" and "the output signal" should be "executing the code" and "the output signal of the transmission media channel", respectively.

In claim 39, lines 10 and 13, "the training sequence" and "the output signal" should be "the training signal sequence" and "the output signal of the transmission media channel", respectively.

The dependent claims 4, 8-9, 27-32, 34, 37-38, 40-45, and 51-52 are depended upon the independent claims 1, 26, and 39.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-6, 8-16, 18-32, 34-45 and 47-52 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The configuration of claims 1, 9, 16, 26, and 39 does not correspond to the discussion of the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

For example, the amended claim 1 recites the steps of generating a training signal sequence including T signal sequence and obtaining a k element output signal sequence ... and an unknown N element impulse response of the channel for values of  $k=0$  to  $k=T-(N-1)$ . However, as discussed in paragraph [0019], lines 5-13 of the specification, the training signal sequence can be a series of wide-band pseudo-random time domain signals of length T, the unknown impulse response  $h(n)$ , for  $n=0$  to  $n=N-1$ ,

and  $y(k)$  is the observed or measured output for  $k=0$  to  $k=T-(N+1)$ , where  $N$  is the number of coefficients of the impulse response  $h$  to be determined. Clearly, the claimed subject matter does not correspond to the discussion of the specification.

With respect to claims 9, 16, 26 and 39, each claim recites a reference value comprises a matrix  $M=(XX)^{-1} X$ , where  $X$  is the training signal sequence in the matrix form and  $X$  is the Hermitian of  $X$ . However, according to the present invention discussed on page 8 of the specification, the computation of the impulse response of the transmission media channel can be expressed as a product of the matrix  $M$  by  $H=MY$ , which is derived from the matrix  $M=(XX)^{-1} X$ , where  $(XX)^{-1}$  is defined as a square symmetric matrix. As recited in the claims, the matrix  $M$  is not the final solution of computing the estimate of the impulse response of the transmission media channel, and the specification does not define  $X$  and  $X$  separated from the square symmetric matrix.

Further, claim 16 delete the step of computing the estimate of the impulse response of the transmission media channel, without the impulse response computing step, claim 16 does not achieve the goal of rapid identification of the characteristics of the transmission media channel.

The dependent claims 2-6, 8, 10-15, 18-25, 27-32, 34-38, 40-45 and 47-52 are depended upon the independent claims 1, 16, 26 and 39.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-6, 7-15, 19-25, 39-45 and 47-52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, "T", "k" and "N" are undefined.

Wherein the dependent claims 2-6 and 8-15 depend upon the independent claim 1.

In claim 19 (lines 5-6) and claims 20-25 (lines 1-2), the phrase "the estimated impulse response of the channel" lacks antecedent basis.

In claim 39, lines 13-14, "the known training signal sequence" also lacks antecedent basis.

Wherein the dependent claims 40-45 and 47-52 depend upon the independent claim 39.

### ***Double Patenting***

6. Claim 34 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 32. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Conclusion***

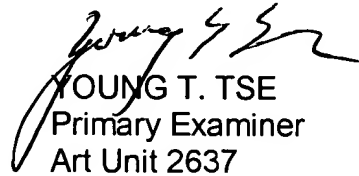
7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOUNG T. TSE whose telephone number is (571) 272-3051. The examiner can normally be reached on Monday-Thursday and alternative Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The Central FAX Number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
YOUNG T. TSE  
Primary Examiner  
Art Unit 2637